

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently Amended) Polycrystalline alumina components optionally containing MgO in a concentration of at most 0.3 wt-%, wherein the alumina contains a concentration from 0.1 to 0.5 wt-% inclusive ZrO₂ as an additive and has an average crystal size $\leq 2 \mu\text{m}$, a relative density higher than 99.95%, ~~and is transparent~~ with a real in-line transmission $\text{RIT} \geq 30\%$ measured over an angular aperture of at most 0.5° at a sample thickness of 0.8 mm and with a monochromatic wavelength of light λ , and wherein the ZrO₂ additive has an average particle size of at most 100 nm.

2.(Previously Presented) The polycrystalline alumina components according to claim 1, the wherein average crystal size is $\leq 1 \mu\text{m}$ and the real in-line transmission RIT is at least 40%.

3.(Currently Amended) The polycrystalline alumina components according to claim 1, wherein the ZrO₂ additive is in a concentration from 0.1 wt-% to 0.3 wt-%, inclusive.

4. (Previously Presented) A discharge lamp comprising a discharge tube having a wall of a ceramic as claimed in claim 1.

5.(Previously Presented) The discharge lamp according to claim 4 wherein the discharge tube has an ionisable filling containing a metal halide.

6.(Currently Amended) A method for forming a polycrystalline alumina component as ~~claimed in claim 1,~~ wherein the method includes the acts of:

preparing a slurry of corundum power with a mean grain size $\leq 0.2 \mu\text{m}$,

adding a dopant, selected from zirconia and a zirconium containing precursor, wherein the dopant has an average particle size of at most 100 nm.

casting the slurry in a mould to form a moulded body, drying and sintering of the moulded body, and

performing a HIP treatment at a temperature of at least 1150° C. for at least 2 hours.

7.(Previously Presented) The method according to claim 6, wherein the dopant is added as finely grained ZrO_2 .

Claim 8 (Canceled)

9.(Previously Presented) The method according to claim 6, wherein after the adding act, the prepared slurry is slip cast in a mould.

10.(Previously Presented) The method according to claim 6, wherein after the addition of the zirconia dopant the prepared slurry is gel cast in a mould.

11.(Currently Amended) Polycrystalline alumina components comprising alumina which contains a concentration between 0.1 to 0.5wt-% inclusive as an additive, has an average crystal size $\leq 2 \mu\text{m}$, and has a relative density higher than 99.95%,~~and is transparent~~ wherein the additive has an average particle size of at most 100 nm.

12.(Previously Presented) The Polycrystalline alumina components of claim 11, wherein the alumina contains MgO in a concentration of at most 0.3 wt-%.

13.(Previously Presented) A discharge lamp comprising a discharge tube having a wall of a ceramic as claimed in claim 11.

14.(Previously Presented) A method for forming a polycrystalline alumina component as claimed in claim 11, wherein the method includes the acts of:

preparing a slurry of corundum power with a mean grain size $\leq 0.2 \mu\text{m}$,
adding a dopant, selected from zirconia and a zirconium containing precursor,
casting the slurry in a mould to form a moulded body, drying and sintering of the moulded body, and
performing a HIP treatment at a temperature of at least 1150° C. for at least 2 hours.

15.(Currently Amended)) The Polycrystalline alumina components of claim 11, wherein the transparency of the alumina is at least 30% having a real in-line transmission $RIT \geq 30\%$ measured over an angular aperture of at most 0.5° at a sample thickness of 0.8 mm and with a monochromatic wavelength of light λ .

16.(Previously Presented) The polycrystalline alumina components of claim 11, wherein the RIT is based on a following relationship:

$$RIT = (1 - R) \exp\left(-\frac{3\pi^2 G d \Delta n^2}{2\lambda_0^3}\right)$$

where

R is a coefficient of surface reflection,

d is the sample thickness,

G is the average crystal size,

Δn is an effective birefringence of alpha-alumina calculated as a weighted average of refractive index differences between each of main optical axes, and

λ_0 is the monochromatic wavelength of the light in vacuum.